

THE VALUE  
OF  
EUROPEAN LIFE IN INDIA.

A REVIEW OF MY REVIEWERS

BY

FREDERIC J. MOUAT, M.D. F.R.C.S. F.S.S.

AND MEMBER OF SEVERAL OTHER LEARNED SOCIETIES.

DEPUTY INSPECTOR-GENERAL OF HOSPITALS (RETIRED); FORMERLY DEPUTY APOTHECARY-GENERAL AND ASSISTANT OPIUM EXAMINER TO GOVERNMENT; IN SUCCESSION, PROFESSOR OF CHEMISTRY, MATERIA MEDICA, MEDICAL JURISPRUDENCE, AND MEDICINE; FIRST PHYSICIAN OF THE MEDICAL COLLEGE HOSPITAL OF CALCUTTA; CHEMICAL EXAMINER TO GOVERNMENT; PRESIDENCY SURGEON; SECRETARY TO THE COUNCIL OF EDUCATION; MEMBER OF THE SENATE OF THE UNIVERSITY OF CALCUTTA; JUSTICE OF THE PEACE FOR CALCUTTA;

*And for Fifteen years Inspector General of Prisons and Ex-officio Visitor of Lunatic Asylums in Bengal, &c. &c. &c.*

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POSITIVE GOVERNMENT SECURITY LIFE  
ASSURANCE COMPANY, LIMITED.

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To FREDERIC J. MOUAT, Esq., M.D., F.S.S., F.R.G.S.  
*Athenæum Club, Pall Mall.*

DEAR SIR,

I BEG to send you a letter from Dr. Ewart to the Standard Office, and a number of Indian newspapers containing criticisms on your Letter to me dated the 28th July last, on the subject of Indian Risks. I am requested by the Board to ask if you are, after a perusal of them, still satisfied of the soundness of the advice you have given us, and whether you are prepared to agree with the opinions of the Board and the General Superintendent as to the principles which they have adopted being thoroughly sound. If you can reply at some length to this, you will greatly oblige us.

Yours faithfully,

JOHN D. BELL,  
*Chairman.*

53, BEDFORD SQUARE, LONDON,  
November 10, 1873.



To J. D. BELL, Esq., CHAIRMAN,

*Positive Government Security Life Assurance Company,  
Limited, 53, Bedford Square, London.*

LONDON, November 15, 1873.

SIR,—

You have sent me a bundle of papers professing to be criticisms on my letter of the 28th of July last, addressed to you, and you have asked me if I am prepared to defend my position, and still consider that I gave you reliable advice on the subject of the risks of Indian residence and service, to Europeans resorting to that country.

Among the papers is a document which had already courteously been sent to me by the Standard Insurance Office in Edinburgh, in which the dignity of sensational type and an abundance of dogmatic assertion, in uncourteous language, are employed to show that I am hopelessly wrong in facts and figures, and that, with a single exception, every argument used by me is wide of the truth,—in fact, a compound of ignorance, unsupported assertion, and dishonest manipulation of figures.

De quibus  
certus es, lo-  
quere oppor-  
tune; de quibus  
ignoras, tace.

In wading through the papers I have

been much struck by the remarkably small amount of wheat in this bushel of chaff. That my letter should be subjected to strict and searching criticism I expected, and, indeed, desired; for the question is one of the gravest importance to all interested in the value of life in India,—and which of us is not. Truth, and truth only, can result from fair and candid criticism; and I shall be ready to withdraw frankly from any weak point in my position which is sapped and breached, and proved to be indefensible by sound argument, whether in words or figures.

But I shall endeavour to show you, not with the hope of convincing any advocate of the existing rates of insurance, that those rates are very greatly beyond the risks incurred, but to satisfy all reasonable men not blinded by self-interest, that my statements were not the careless word-pictures of one ignorant of the subject, but the results of a long life of careful observation. “Plus les yeux ont vu, plus l’esprit voit aussi.”\* I do not presume to say that I am right in all my views, for I have no pretension to infallibility; but, right or wrong, I entertain them honestly, and am prepared to defend them without any other feeling than the earnest desire for truth, without which victory in an argu-

\* Zimmermann, “*Traité sur l’Expérience.*”

ment would be worthless and worse than defeat.

The position I took up, was to the effect that a man of the insurable age with an insurable life, such as would be accepted by a London office as a first-class life, if in moderately easy circumstances, and fairly temperate and prudent in his manner of living, would, in ordinary circumstances, have as good a chance of outliving the risks of India, as he would have of surviving for a given number of years had he remained at home.

The real nature of the position I took up.

In support of my argument I stated that the old tables of Indian mortality were not applicable to the changed conditions of life in India; and I endeavoured to show that, in my humble judgment, much of the sickness and mortality which had been debited to climatic causes was in reality due to other circumstances, and that from the changed conditions of Indian life of late years, the risks to life were very considerably diminished.

Old tables of Indian mortality not applicable to India as it is.

I need not overload my letter with a recapitulation of each of my statements upon which so many adverse adjectives have been expended, as I shall take up *seriatim* each of the points on which my judgment is impugned,—generally with courtesy and good-natured banter, occasionally and inexcusably with the reverse.

As it is, I am afraid I must tax your

patience at some length, in order that I may not again be charged with failing to justify my judgment by a substantial array of figures, and with not giving strength and validity to my argument by better proofs than those contained in the letter which has caused all this commotion.

Opportunities for studying the question which I enjoyed.

The question at issue is far too serious to permit of the introduction of personal matters, except as to the claim which has been made upon me, and of which I frankly admit the validity, to put the public in possession of the sources of information on which my opinions are based. To the imputation of motives and charges of disingenuousness, ignorance, and misleading which some of my critics have thought proper to indulge in, I have no other answer to give than the good name I have been sufficiently fortunate to make by thirty years of hard work in India, for which I have received the repeated public acknowledgments of those with whom I was associated, or under whom I served.

When I was asked for my views on the subject of the value of European life in India by Mr. Nassau Senior, I was not even aware of the existence of the POSITIVE ASSURANCE COMPANY, and I had no personal or pecuniary interest in it, one way or the other. As I implied in my first letter, and as I state directly now, my attention was directed to the subject of the sick-



ness and mortality of all classes of persons in India, almost from the hour of my landing in that country to the day of my departure.

During this lengthened period, I was constantly brought in contact with sickness and death, in an executive capacity for the first half of my service, and in an administrative office during the latter half. I kept careful notes throughout, as I at one time contemplated the devotion of my life to the study and illustration of the causes and effects—in professional parlance the ætiology and pathology—of tropical diseases. To this end I accumulated a considerable amount of information, with a view to ultimate publication, and that information is now in my possession.

General  
sources of in-  
formation.

I also became possessed, at his death, of the journals and case-books of my father, who was for thirty-seven years in medical charge of European troops, and whose published writings and official reports show him to have been one of the best informed, most industrious, cultivated, and successful physicians who ever went to India.

With the special question treated of in the letter which has stirred up this controversy, I had abundant opportunities of making acquaintance. When I landed in Madras in May, 1840, it was my good fortune to be received by the late Dr. John Murray,

Special study  
of the present  
question.

then principal medical officer of the Queen's army in the Madras Presidency. He was engaged in making inquiry into the sickness and mortality of the European portion of the Madras Army. The results which he endeavoured to educe from the official returns were so discordant and discrepant, that he was unable to put them into a shape fitted for publication. He made the whole mass of papers over to me, and I was able by a very minute scrutiny to detect the sources of error, and to harmonize the results. Those curious in the matter may consult the tables which I published for Dr. Murray, in "McClelland's Journal of Natural History," of which there is a copy in the Calcutta Public Library. I have reason to believe that they are among the earliest printed tabular statements on this deeply interesting question.

Subsequently, I was member of a Committee appointed by the medical officers of the Bengal Army to examine into the affairs of their Retiring Fund. The net result of this inquiry was to show that the mortality tables and calculation of chances of survivorship had been fixed at so unduly high a figure, as to necessitate the retention for an indefinite period of the maximum rates of subscription, to pay the annuities of the retired members, who declined to die at the rate fixed for them by the Carlisle tables. An eminent actuary,

Dr. Thomas Smith, Professor of Mathematics in Dr. Duff's school, was consulted by the Committee, as were also actuaries in England.

As mentioned in my former letter, I was one of a body of gentlemen, long after the above period, who endeavoured to found an Insurance Company on more reasonable rates of premium than were then charged. I find that I was mistaken in supposing that the tables then drawn up were not printed. The gentleman who drew them up has told me that they were printed ; but I have not been able to obtain a copy of them.

The above, then, are the opportunities which I have had of studying this particular question, and on them are based the opinions contained in the letter, the criticisms on which have called forth this reply.

It is with great unwillingness that I bring forward these personal matters, but, as my statements have been directly challenged, and I have been called on to produce my credentials, I do so once for all, as I shall not again notice, in any way, remarks having a mere personal bearing or application.

In no particular have my statements been more misunderstood and more mischievously misrepresented than in that relating to European prisoners. All that I contended for was, that a great deal of sickness and mortality, which was debited

Misapprehension and misrepresentation of my argument regarding the improved health of dissipated Europeans in Indian prisons.

to climate, was in reality due to other causes, as the improved health of dissipated Europeans in the Presidency and Hazareebaugh gaols showed.

The figures quoted by or against me are of no further value in the discussion than as proving the general fact. I quoted from the latest accessible returns in my possession, and I eliminated cholera advisedly, for reasons which I still continue to consider to be sound. Nothing which has been advanced has in the least degree shaken the strength of my position.

Exactly the same thing has been observed in Great Britain, where the death-rate among soldiers, which is, on an average, 9 per 1,000 when in the ranks, in the prisons is reduced to 3 per 1,000. The effect is identical in both cases.

As regards Hazareebaugh, one of the healthiest places in Bengal, I happen to know that it was for many years abandoned as a golgotha, in consequence of the frightful sickness and mortality in its European garrison.

The figures quoted by Dr. Ewart of the losses by death in the European forces of the three Presidencies of India, to prove that purely climatic causes are responsible for the great excess in the rates over those of soldiers serving at home, do not, in my judgment, prove anything of the kind.

They do certainly show that soldiers die and are invalided in greater numbers in India than in England, and that there is something in the conditions of military service in the East which needs more careful examination than it has yet received, in its relation to the wear and tear of so costly an instrument of British rule.

But the circumstances of military service, as regards the rank-and-file at home and abroad, are so entirely different from those of civil life, that no useful comparison, for insurance purposes, can fairly be instituted between them.

The same is true of all armies of which I have examined the vital statistics, and I do not deem it necessary to refer further to them in the present discussion.

Much has been made of a mere figurative expression, that "I could almost count on my fingers" the number of persons in my large circle of acquaintance who had died from tropical diseases, or whose diseases could fairly be attributed to purely climatic causes. It is, no doubt, eminently unsound and unscientific to use words liable to misunderstanding from the well-meaning, and to misrepresentation from the unfriendly, and they would be altogether out of place in a strictly scientific treatise. But, I cannot admit that, in fair and candid criticism, or in controversy carried on without vulgarity or asperity, my words were liable to

Danger of employing indefinite expressions when subjected to the criticism of interested persons.

the strict digital dealing with which they have been treated. My obvious meaning is contained in the portion of the paragraph which it did not suit the purpose to quote, of the critic who has offended most seriously against the laws of good manners, and whose example I have no desire to imitate. The words omitted were, "A large proportion of those who died, and they were sufficiently numerous, were carried off by organic diseases, or by constitutional affections which would have proved as surely fatal in Europe as they did in India." To this statement I adhere unreservedly, and to obviate all chance of my being again subjected to the ten-fingered type of argumentation, I will repeat what I said in my 7th paragraph, viz., that much of the sickness and mortality among all classes of Europeans in India which is debited to climate, is, in reality, due to causes connected with the habits of the individuals, and strictly within their own control. In no examination of my letter do I find any serious attempt to disprove this.

Now, it is not improbable, judging of the future by the past, that I may be charged with libelling a majority of my deceased friends and acquaintances by referring to their habits as the primary cause of their sickness and deaths, and that I must have known an unusually large number of

candidates 'for a short life and a merry one.'

The habits to which I refer, then, were exposure to sun and marsh with insufficient protection, and imprudent absence of care in field sports; camping out in jungle in like manner, for a like purpose; and similar incidents of Indian life, none of which can fairly be held to be necessities or uncontrollable incidents of the ordinary occupations of the civil, military, planting, ecclesiastic, or any other classes of the insurance-seeking community. In some, also, there was a style of living which, without being chargeable with excess, was unsuited to the high temperature of certain seasons in the lower and higher latitudes of British India. It would be as reasonable to charge the Strasburg goose with being the legitimate father of the fat which makes of his liver a dainty delicacy, as to debit disease so caused to climatic influences, pure and simple.

An homœopathic dose of learning and an allopathic exhibition of the opposite quality, have been expended on my statement regarding the ordinary endemic diseases of the country, of which the exciting causes are generally admitted to be tolerably well ascertained. I said that "in the majority of them, Europeans of the classes who effect insurances on their lives,

Grounds of my belief as to the non-necessity of Europeans in easy circumstances being exposed to the chief direct exciting causes of the ordinary endemic diseases of India.

need never be exposed, and, as a matter of fact, are seldom or never exposed.”

These are correctly described to be exposure to the direct and indirect rays of the sun, and to that protean symbol of a mystery which science has not yet been able to solve, yclept malaria. This is the homœopathic atom of wisdom in the criticism.

To face exposure to sun and malaria is said to be as much a necessity of the ordinary life of a planter, police-officer, doctor, civilian, or military officer, as it is of the city banker or merchant who visits his office at stipulated periods. And I am gravely and politely charged with the betrayal of an amount of ignorance as to the distribution of the classes who do insure their lives, “which is deplorable.” This is the allopathic dose of unwisdom.

First, then, as to my means of acquaintance with the habits and proclivities—private and public—of the various classes above enumerated. I have known personally large numbers of every one of those classes. I have dwelt under the hospitable roofs of most of them in every part of Bengal in which they are to be found, and in some parts of Madras, the Punjab, and the N.W. Provinces.

The judge’s court, the magistrate’s cutcherry, the planter’s bungalow, fac-



tory, and garden, the police officer's dwelling and office, the bank parlour, the doctor's consulting-room, and the merchant's place of business, were all open to and visited by me, times out of count, when I was in India.

I have witnessed the coming and going not only of those classes, but of another class to whom the remarks of the champion of the Standard really do apply, but to whom he has not referred, viz., the railway servants high and low, of whom I have something to say which may not prove pleasant to the arithmeticians who traffic with mortality tables as one is unhappily compelled to deal with the current coin of the realm in India, viz., to count rupees as shillings.

It is then from the fulness of knowledge of the cardinal conditions of life in India among Europeans in easy circumstances, that I have come to my conclusions, and not from the "deplorable ignorance" placed to my credit.

Believe me, Sir, that I feel it to be pitiable and humiliating to be compelled to dwell on such trivial personalities, in a matter which is of so much scientific and general interest and importance.

Having shown, I trust satisfactorily, that I possessed the means, even if I did not apply them correctly, of getting at the knowledge, I will endeavour to put you in

possession of the grounds on which my judgment was based.

Increased  
duration of life  
the direct re-  
sult of civiliza-  
tion.

Buckle, in his "History of Civilization," in speaking of the dominion of the human mind over the agencies of the external world, says that—

"Even in those countries where the power of man has reached the highest point, the pressure of Nature is still immense ; but it diminishes in each succeeding generation, because our increasing knowledge enables us not so much to control Nature as to foretell her movements, and thus obviate many of the evils she would otherwise occasion. How successful our efforts have been is evident from the fact that the average duration of life constantly becomes longer, and the number of inevitable dangers fewer ; and, what makes this the more remarkable is, that the curiosity of men is keener, and their contact with each other closer than in any former period ; so that while apparent hazards are multiplied, we find from experience that real hazards are, on the whole, diminished."

In a note to the above passage, which is to be found in chapter iii. p. 139, vol. i. of the earliest edition of his "History of Civilization," the same remarkable philosophic writer adds :—

"This diminution of casualties is undoubtedly one cause, though a slight one, of the increased duration of life ; but the most active cause is a general improvement in the physical condition of man ;"

in proof of which he quotes a long list of authorities.

This argument is singularly applicable to the improved conditions of European

life in India,\* and so far from the hostile lance having searched out a chink in my armour, it affords me the strongest possible ground of defence.

Exposure to the direct and indirect rays of the sun is undoubtedly a constant source of peril to Europeans in all tropical countries, and would be rapidly fatal to the majority of them, if they made no effort to protect themselves against the danger.

The sun as a direct and indirect cause of tropical disease.

The late General Jacob, one of the best and most experienced soldiers in the long roll of Indian military worthies, on the subject of exposure to the sun, tenders the following advice to the young Indian officer :—

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\* “The study of the changes which have taken place in the world around us, in their relations as cause and effect, with the alterations of which the health of man is susceptible, lead us to a logical proposition, which may be thus formulated :—

“The great perturbations which occur in the social and physical condition of people, by introducing corresponding changes in the salubrity, the well-being, and the public and private hygiene of different countries, modify the nature, the gravity, the treatment, and the mortality of the prevailing diseases.”—(Gavarret’s “Statistique Médicale,” pp. 181–2.)

This is exactly what has happened in India during the century of English rule, in which, from increased security to life and property and constantly-extending cultivation, the physical and social conditions of the people have undergone a silent and imperceptible, but not less certain, revolution. For Europeans in India this revolution has been accelerated by the introduction of steam and telegraphic communication.—F. J. M.

“ Let it be the fashion to be English. It is a fallacy to suppose that the climate compels to be otherwise. Let the young man never enter a palkee, but go about on the back of his pony. Let him not fear the sun ; it may tan his cheeks, but it will not hurt him. It is your effeminate gentlefolks, who live in dark houses artificially cooled, with a dozen Hindoos at work with fans and flappers to beat the flies off them, who suffer from exposure ; not the hardy young Englishman who, if not intemperate, soon becomes acclimated ; and the more readily so the less he regards the sunshine, which is healthy enough in moderation.”

In fifteen years of official wandering at all seasons of the year, and in every nook of the Bengal Presidency, I came in personal contact with but three cases of direct insolation or sun-stroke, in persons of the insuring classes. One was a clergyman in Upper Assam, who disregarded the sun, and by imperfect protection of his head very nearly paid the penalty of his imprudence. The second was an officer of Engineers, who had an equal contempt of the fiery ruler of our firmament, and after nearly twenty years of immunity, fell a victim to his rashness. The third was a stout, active, plethoric station-master of the East Indian Railway, who died rapidly from an apoplectic seizure from exposure to the sun, immediately after eating a heavy lunch. I was told of, but did not myself see, three or four other cases which happened at stations shortly before I visited them.

Among soldiers, on the other hand, I was witness to an unhappy march of H.M.'s 62nd Regiment from Fort William to Hazareebaugh, and I saw between one and two hundred men who had been struck down by the sun in a single morning. The men had been drinking hard, and a few of them paid the penalty of their folly.

In the Medical College Hospital, several Europeans were brought into my wards, at different times, struck down by the sun. One of them was a drunken assistant-surgeon who died a few hours after admission, and had the largest fatty liver I ever saw. The whole of a sergeant's guard in the 21st Fusiliers, when I was attached to that regiment, were struck down by the sun at a funeral, in August, 1840, when, from defective arrangements, they were unduly detained until the sun was high in the heavens, with the utterly ineffective forage-cap then worn by the infantry of the line.

On the subject, then, of exposure to the direct rays of the sun, I consider that I am justified in stating that, with sufficient protection for the head, neck, and loins, or the shelter of a vehicle of any kind, and the most ordinary prudence, the risk of sun-stroke to any man engaged in his ordinary occupations is so infinitesimal that I scarcely know how to express it in figures, even with the employment of the decimal

notation. This is as true of planters in Assam, Sylhet, and Cachar, as it is of merchants and bankers in Calcutta, as I can aver from personal observation.

Influence of  
the indirect  
rays of the sun.

- As regards the effects of the indirect rays of the sun—a pedantic euphuism for elevated temperature,—I have great confidence in the efficacy of appropriate clothing, punkahs, the thick roofs of bungalows, verandahs, chicks, venetians, and the multitude of devices which the intellect of the European in India has devised, to render his existence bearable in circumstances not natural to him. This illustrates forcibly his power of even controlling nature when his conservative instinct recognises in her external agencies, powers or properties inimical to health. If to this be added the use of ice, and the
- moderation in eating and drinking which every sensible man now practises, it appears to me to be difficult to understand how any man of average intelligence and information, can deny that the social life of India has changed materially for the better in late years. The change is still in progress, and it has diminished, and will continue to diminish, the risks to life, of which no exact or reliable estimate can be formed from figures which were first\* collected

\* The more recent calculations of English actuaries

in, and included, the times when a chief justice changed his shirt six times in a single morning sitting of his Court; when rulers of provinces alone rode in carriages; when high dignitaries walked to church and to their offices under umbrellas, and when lower dignitaries were prohibited by order from doing otherwise; when hackney coaches and palanquins were still in an undiscovered future; when punkahs were not even dreamt of, and ice had not quitted its customary abodes; and when the denizens of the Mahratta Ditch met together, in a house still existing in Lall Bazaar, to congratulate each other on having survived the hard drinking and exposure of the previous rains. Is not all this, and much more to the same effect, recorded in the quaint chronicles of our predecessors? I myself have witnessed the disappearance of the last hookah and the last white jacket from an Indian dinner party. In the same direction have gone the six-bottle men, the bilious and irascible uncles of the

begin with 1800, when some of the conditions referred to had begun to disappear, but when the chief of them all—hard drinking—was still the most prominent instrument in the band which played to the Dance of Death. Drink is still the first fiddle in the orchestra of those classes who continue to indulge in “potations pottle-deep,” an unhappily numerous class at home and abroad.

dramatists of the early part of the century, and similar curiosities of even a quarter of a century since, and to the same

“Limbo, large and broad, since called  
The paradise of fools,”

will, I hope and believe, ere long be consigned the existing delusions on the subject of the risks to European life in India of healthy and temperate toilers in Her Majesty's Eastern Empire.

Malaria as a  
direct cause of  
disease.

And now, I will consider the question of malaria as a *direct cause* of disease. If by it be meant the heat of the hot weather and the moisture of the rains in the alluvial plains of Hindustan; the rapid evaporation and drying up of the tissues by the hot winds in the Upper Provinces; and the general influence of these conditions acting through the external agencies, animate and inanimate, by which man is surrounded, upon the blood, and upon the human organism generally, I agree fully that they are unavoidable, and that all are, more or less, exposed to them at all times. I differ only in the estimate expressed of their present and permanent influence in undermining health, and in their consequent tendency to diminish the duration of life in the favourable conditions of existence within the reach of all in moderately easy circumstances in India. To work this out to its logical conclusion



would need a treatise on the pathology of Indian diseases,—a book which has still to be written, for which I had gathered a considerable amount of material, and which it was once my intention to produce, had my professional career not been interrupted by administrative duties which left me no time for other pursuits. It would be altogether out of place in the present discussion, and is, moreover, in no way essential to my argument.

However trying the conditions above-mentioned may be and are to the comfort of Europeans in India, the means of reducing their power of mischief very considerably are now known and generally practised. The balance in this direction, also, is redressed by the cold weather, which is greater in length than either of the other seasons separately, and during which nearly every part of the plains of India is as healthy to Europeans as any country in the world; while, during the unhealthy seasons in the plains, the hills of the Himalayas are as healthy as any part of Switzerland or the other health-resorts of Europe.

But I employed the term used in my letter in a much more restricted sense, as a *direct* exciting cause of disease, and to the strict technical propriety of this restriction I adhere.

Malarious  
influences not  
always in ac-  
tive operation.

The direct effects of malaria more active by night than by day.

All emanations and exhalations from the soil are more active in operation during the night, than they are when the sun is up and doing an important part of his appointed work, viz., the dissipation and destruction of mists and miasmas of all kinds.

Experimental inquiry on the periodicity of tropical disease.

Some years since, with the aid of the late Mr. George Daly, House Surgeon of the Calcutta Medical College Hospital, I made a considerable series of observations, extending over several months, on the periodicity of febrile and inflammatory affections in Lower Bengal. The record of the results was not sufficiently detailed and exact for strictly scientific purposes, or for publication; but, so far as they went, they seemed to establish that the period of lowest temperature, barometric pressure, and electrical tension, was that of greatest depression of the system in both the healthy and the diseased, and that this occurred with tolerable uniformity about an hour before sunrise, extending over the whole term of observation, from May to October. This, then, was the time when exposure to noxious exhalations was most dangerous. It also was the period of fatal termination of some of the cases of dysentery, fever, and liver disease, and of the invasion of cholera and pernicious fevers, of which I had many cases in my wards. It was also the period

of remission, or lowering of temperature, in fevers complicated with local inflammations, and the proper time for the administration of quinine and other anti-periodics.

If observations extending over a considerable period of time, and embracing all the disturbing elements of season and local and personal conditions, were carefully conducted, I am of opinion that the general law regulating this important matter might be discovered. It would add another link to the chain of philosophic observation establishing the cosmical relations of the human system with physical phenomena, which Professor Virchow, the most eminent of living pathologists, has shadowed out in his researches.

Importance  
of continuing  
the inquiry.

The above being my belief on the subject, whether well or ill-founded, is, I apprehend, a sufficient justification of my statement, that "the majority of Europeans of the class who effect insurances on their lives need never be exposed, and as a matter of fact are never exposed," to the *direct exciting causes* of the ordinary endemic diseases of the country.

The only—and even to them comparatively rare—exceptions are police-officers and doctors, always excluding railway officials, some of whom are on foot at all times of the day and night, with results stated in another paragraph of this review of my reviewers.

When magistrates hold their courts at midnight, planters sow and reap in the dark, brokers discount bills at day-dawn, and city bankers unlock the till by moonlight, I may possibly see reason to change my views.

At present, I must continue to adhere to them.

Position of  
cholera as a  
cause of death.

No statement made by me has been more generally questioned than that relating to Indian epidemics in general, and to cholera in particular, as "exercising little appreciable influence upon the risks to life" of the classes likely to become clients of the Positive.

This general dissent is a striking example of the absence of exact knowledge of the subject, exhibited by those who have passed judgment on it. I could not have desired a better test of the soundness of my position.

General laws  
of epidemics.

A scientific and not a mere technical study of the laws of mortality from epidemics, so far as they are yet established, shows that they are in no degree different in temperate and in tropical climates. In both cases the fatal results are most frequent at the two extremes of life, neither of which falls within the limits of assurance.

Now, how stand the facts in regard to Bengal, which has been termed the "Home of Cholera," and where we ought,

accordingly, to find the strongest proof of my inaccuracy were my statements really incorrect. In 750,000 cases of disease among half a million of prisoners, in a quarter of a century, there were 21,000 cases of cholera. The mean mortality of the period was 62 per 1,000, of which cholera accounted for 16, showing, as an analytical examination of all the causes of death in those institutions would prove, were it worth while to trouble you with the detailed figures, that cholera only occupied the fourth place in this wholesale destruction of life. To ascribe exceptional influence to it, then, as a cause of mortality, even among native prisoners, would certainly not be correct.

The prisons of Lower Bengal are a crucial test of the question, for during the period embraced in the above examination, from 1844 to 1868, several of those prisons were perfect pest-houses, from some of which cholera was very seldom absent, and from all of which there was no escape for those exposed to its attack.

In the Presidency Jail, from 1855 to 1868, among 5,366 cases of sickness, there were 57 of cholera, or in the proportion of 35 per 1,000 from cholera to 3,318 from all other diseases. It is true that 21 of the cholera cases died; but to the medical officers who were acquainted with the state in which these diseased and

dissipated men entered the prison, it was a matter of surprise that any of them survived.

The other facts connected with the risks to life of the European prisoners in the same gaol are well worthy of attentive consideration, in the discussion of the risks to European life generally of a residence in the metropolis of British India. From 5,366 cases of sickness from all diseases, excluding cholera, there were 26 deaths in the same fourteen years, and of these there was a fair proportion which were in no way due to climatic causes—drink, syphilis, constitutional taints, and irregularities of all kinds being really responsible for a fair share of them.

Cholera  
among Euro-  
peans in easy  
circumstances.

As to cholera among the classes of Europeans in easy circumstances. During my long acquaintance with Calcutta, I remember but one death from that disease among the medical men at the Presidency, and not a single casualty among the European staff and students of the Medical College while I was connected with it. A similar immunity from the disease among hospital surgeons and attendants was recorded many years ago by Twining in Bengal, and Annesley in Madras. There are no sounder authorities on the leading facts connected with cholera than the earlier Indian writers.

In other classes of the European com-

munity at insurable ages, the proportionate number of cases was very small indeed. It would not be difficult for any one in Calcutta, who is a searcher after truth and not the advocate of any system whatever, to ascertain the exact figures, for the materials exist to supply them, as every death from that cause was recorded in the public prints at the time.

In the European army I have been informed that in one of the worst cholera years of our time, in which 617 soldiers died from Asiatic cholera, there were two deaths among an average of 1,428 officers.\*

In the face of these facts, for they are neither fictions nor fancies intended or calculated to mislead, at what other conclusion could I arrive?

That in the whole history of India one Governor of Madras, and one most respected archdeacon, with an inspector or two, and a High Court judge of great ability, should have died from cholera, in no way militates against the exact truth of my statement, to which I must, therefore, continue to adhere, until some better proof of its inaccuracy has been furnished, than any advanced in the papers which you have submitted to me.

\* I have since ascertained that these figures are incorrect; but as I intend to send you the authenticated official returns for the last ten years, I do not refer further to the matter at present.

Old and new  
data for esti-  
mating present  
risk to Euro-  
pean life in  
India.

I accept Mr. Samuel Brown's combined civil and military rates of Indian mortality, and Mr. Woolhouse's Bengal military rates, with implicit faith and confidence. Those gentlemen are too skilled, honourable, and eminent for any one to question either their accuracy or their good faith. I simply contend that their figures embrace periods, some extremely exceptional in character, as the Burmese, Sikh, Punjab, China, and other wars, and the Indian mutiny, and they all include insurable and uninsurable lives,\* which, if carefully separated, would very materially influence the result. For this reason I do not consider them to be applicable to existing circumstances, or to the really insurable lives which alone would be accepted, after careful scrutiny, by the agents in India of the Positive.

I must decline altogether to repose the

\* Not only are officers, civil and military, subjected to an incomplete and insufficient medical examination prior to proceeding to India, but once they reach that country there is no further attempt of any kind to distinguish between good and "bad" lives in the mortality returns from which Brown's and Woolhouse's tables are compiled. So long as fifty years ago, Annesley of Madras pointed out certain classes of Europeans who ought never to be enlisted as recruits. In the old patronage days of the East-India Company I doubt if any boy who had obtained a cadetship or a writership was ever rejected on the score of health, and yet Brown's and Woolhouse's tables cover 58 years of the rule of the late Court of Directors.



same faith in any statement of the advocates, lay or medical, of the Standard until I know by what process their shares have risen in value 7,200 per cent. That this marvellous commercial success, which they are quite right to attempt to uphold and continue, has been attained by a fair and equitable estimate of the risks of life at home or abroad, calculated in any other interests than their own, I can neither understand nor believe.

I estimate at a very low figure the honesty of their endeavours to excite apprehensions in the public mind against schemes in which the interests of insurers are more immediately and directly consulted, and which, I will endeavour to show, are based on quite as sure grounds as are necessary, in an entirely new line of business, to secure public confidence and support.

The mean mortality of Brown's tables gives, for all ages combined, a rate of 26 per 1,000 for military, and 19 per 1,000 for civil, lives. Woolhouse's, which commence at a late period of life, give a mean death-rate of 34 per 1,000 for military men. Farr's table of healthy lives in Great Britain, from fifteen to fifty-five, gives a mean rate of about 9 per 1,000, fractions being omitted in all cases.

The production of Mr. Brown's figures, and the omission of the remarks by which that eminent actuary explained them, is

Mr. Brown's  
remarks on his  
own tables.

not a step calculated to strengthen the position of the Standard.

Mr. Brown says :—

“ In the original tables, the facts are given at every age of the members, whether in active service or retired. . . . In the Bengal and Madras Funds they are also distinguished into periods of years, so that the progressive improvements in the rate of mortality since the beginning of the century may be minutely traced. Much controversy has arisen on this subject, Mr. Neison’s views being to a certain extent opposed by those of Messrs. Finlaison and Lewis ; *but, I am gratified to say, that all the observations I have collected, whether relating to the military or civil services, indicate that the IMPROVEMENT IS STILL GOING ON.*

“ *Many circumstances are favourable to this result. The much more frequent visits to Europe, which the rapidity and facility of steam communication render possible, the selection of more healthy stations for the troops generally, the establishment of sanatoria in the Hill Stations, where even a brief sojourn restores health and strength to the exhausted constitution, and to which places railways have offered rapid and convenient access ; and, above all, the great change in the social habits and customs of European society in India have effected a marked and permanent diminution in the HIGH RATE OF MORTALITY, WHICH WAS FORMERLY THOUGHT A NECESSARY CONSEQUENCE OF RESIDENCE IN TROPICAL CLIMATES.*”\*

To compare with the above I will take the only reliable data available at the present time of European lives which are

\* “ On the Rate of Mortality amongst the Natives compared with that of Europeans in India.” By Samuel Brown, F.I.A.—*Journal of the Institute of Actuaries*, No. lxxxiii. April, 1871, pp. 187–216. The italics are mine.—F. J. M.

exposed to the maximum of risks of climate in India, viz., those of European railway *employés*, high and low.

I will reproduce the exact words and figures of the Parliamentary Blue Books on the subject, because they are accessible to all, and because others are as capable as I am of estimating the value of their bearing on the present question.

Parliamentary returns of railways India.

The following table is extracted from p. 10 of the Report submitted to Parliament of Railways in India, from their commencement to the end of 1859.

Year.	Number of Covenanted Servants in each Year.	Number of Deaths in each Year.	Percentage of Deaths.	
1850	6	—	—	N.B.—In the "column of deaths," those caused by the mutiny are not included. In the return of covenanted servants for the years 1858-59, those engaged in India are included in the total number.
1851	12	1	8.30	
1852	29	—	—	
1853	67	—	—	
1854	130	—	—	
1855	183	8	4.37	
1856	247	10	4.05	
1857	297	18	6.06	
1858	494	11	2.22	
1859	526	17	3.23	

This return exhibits two remarkable features. The first, that only one person should have died in the first five years of a work which is most unwholesome in its commencement, viz., when fresh soil is

turned up. It also shows that the anxieties and suffering of the mutiny year caused a sudden rise in the death-rates of those who were not directly killed by it; and that the Sonthal insurrection, when the works were being carried through a most unhealthy part of the country, caused an immediate rise in the casualty rate, which continued through the succeeding year and lasted to the mutiny time. Some of the worst cases of pernicious remittent fever that I ever saw or treated were among railway *employés* from the Sonthal country during the Sonthal rebellion.

In the Appendix to the report for 1864-65, the late Dr. Brinton, the Medical Examiner of Candidates for employment on the Indian railways, furnished a statement on the subject of the principles which guided him in rejecting unsuitable lives, from which the following extracts are of considerable importance in estimating the risks to life generally of Europeans proceeding to and dwelling in India.

He says:—

“Of those presenting themselves for examination during the last twelve months, one in five has been rejected. As the arduous duties which most of those persons have been fulfilling up to the date of examination may themselves almost be regarded as tantamount to a certain selection, and as the large proportion of such persons already employed on English railways have in many instances passed a special examination on being engaged for these railways, this

percentage of rejections must be regarded as a large one.

“In some instances, the special requirements of an Indian climate, as to prospective health, have been the cause of rejections. But in the majority of cases rejections have been necessary from organic lesions and obvious tendencies to disease, such as would disqualify the subjects of them for acceptance as ‘first-class lives by any London office.’ \* \* \*

“The average age of the persons examined is 30 ; the average age of those rejected is from 33 to 35 years.

“It need hardly be said that the age of those sent out must exercise its ordinary influence on the rate of mortality. But inasmuch as, in many instances, the posts to be filled require long experience and high character, it is evident that the officers of railway companies must always be, as a body, liable, on this ground, to a larger mortality than recruits and junior officers despatched to India for military service.

“The special duties of railway officers repeat this unfavourable contrast by implying exposure and fatigue, exceeding those experienced by the Queen’s troops not in active service. The surveying and construction of railroads must, I should judge in many instances, necessarily place those engaged in such duties in places (such as the neighbourhood of variable rivers and low alluvial plains) peculiarly the haunts of malaria, productive of fevers and agues. If, as I believe is the case, the surveying engineers of some of the railways have suffered much from such ailments, the cause may, at least, be partially found in the above circumstances. Certainly, in all my life-office experience I have never examined any body of gentlemen at all approaching them in respect of the vigour and health they have collectively shown under examination before proceeding to India.

“There are various topics bearing on the health of the artisans sent out, which I cannot profitably enter on at present. The influence of alcoholic

intemperance ; the occurrence in some instances of a kind of nostalgia or home sickness ; the careless habits of life many seem to fall into, are illustrations of what I allude to. If it were possible (which I am afraid it is *not*), some of these and other detrimental circumstances might be diminished by these men taking out their wives with them, and by an habitual substitution of the voyage round the Cape for the overland journey, in which the change of climate is comparatively sudden, and in which many of this class, accustomed to arduous exertion and moderate food, are placed in enforced idleness, and on what are, I presume, almost unlimited rations of food, if not of drink, just at the time when this change is being rapidly undergone by them. From such causes it has accordingly happened that men leaving England in perfect health have arrived in India temporarily and even permanently unfit for the duties they had discharged with the utmost efficiency up to the date of their medical examination here."

This is a long quotation, but the observations are sound and valuable, and have an important bearing on the question of the sickness and mortality of railway *employés* in India, after their arrival there.

I attempted to construct a table to show from the data contained in the Parliamentary returns, the exact number and ratio of deaths in each year from 1850 to 1871 inclusive, but I have not been able to do so, as the figures necessary are wanting in some of the years, and a distinction is not always drawn between Eurasians and Europeans, increasing numbers of the former being employed in latter years.

The deaths in the years subsequent to 1859, as far as I can gather them in the Reports referred to, were as follows :—

Years.	Covenanted Servants.	Deaths.
1860	1,137	19
1861	2,181	20
1862	2,345	24
1863	—	17
1864	2,958	22
1865	3,527	37
1866	8,001	53
1867	3,051	—
1870	5,670	59
1871	4,852	—

In the remarks contained in section 20, pp. 6 and 7 of the Report for 1863-64, are the following remarks, germane to the matter, by the Government Director.

“The maintenance of a highly-paid European agency is one of the obstacles to the economical working of Indian railways, and to it may be added the extra liability of losing the services of men who, from the nature of their occupation, from carelessness or intemperance, expose themselves to the ill effects of a tropical climate, and either sink under them or return to Europe on sick leave.”

After giving a table of the deaths, retirements, and rejections, on medical grounds for the four years, 1860, 61, 62, and 63, Mr. Danvers says :—

“It thus appears that the average number of deaths for the four years (excluding the East Indian Railway, from which I have been unable to obtain returns) is 20 per annum, and of retirements on account of failing

health, 15 per annum. Taking the number of Europeans in the employment of the nine companies to be 2,800, the mortality would be less than one per cent. There are no means of judging of the provident habits of the European mechanic when in India. The rate of pay he receives enables him to make provision for the future, but there is not the opportunity, as in this country, of exercising qualities of prudence by belonging to benefit and other societies."

Again, in the Report for 1864-65, speaking of the year 1864, Mr. Danvers says:—

"The average number of casualties in the four previous years, exclusive of the East Indian, which I was unable to obtain before, but which this year is nearly one-third of the whole, was 35 per annum. An improvement has therefore taken place. The care which is taken to prevent persons unfit for active service in India from going out is indicated by the number of rejected candidates. The mortality among those who do go out does not average more than one per cent. per annum."

In the report for 1867-68, at page 9, paragraph 21, occurs the following statement:—

"The Indian railway service is yearly becoming more numerous and important, and the European portion of it consists of a class of men which, until within the last ten years, has been in a very limited degree connected with any departments of our administration in that country. A civil engineer was seldom seen in India before railways were introduced, and the usual staff of a railway, from its traffic manager and locomotive superintendent to the engine-driver and stoker, were of course unknown. Now, it will be observed, they are to be counted by thousands. They go out from this country generally between twenty-



five and thirty years of age, and they spend the best part of their lives there. The mortality among them, notwithstanding the exposure to which they are subject, has been below the average. This may, in some measure, be due to the care which is taken in selecting healthy lives."

The last report containing special reference to the subject which I have been able to consult, is that for 1870-71, in which it is mentioned that "the casualties by deaths amongst Europeans in Bengal (including the Punjaub) was 1·2 per cent.; in Madras, 2; in Bombay, 1·1; being an average of 1·2 for the whole of India."

It will be seen that I have omitted all reference to resignations from sickness and dismissals. I have done so because the returns contain no specific information regarding them, and I do not think that it is possible now to ascertain what becomes of them. For purposes of Life Assurance the former would certainly have to be taken into account, and would, no doubt, exert an appreciable influence on the real risks to life of those who go to, or dwell for any length of time in, India. In no condition of Indian life, however, has a greater change for the better taken place in my time than in that of the timely removal of the sick from the localities in which the sickness has been contracted. As a rule, I have reason to believe that those who beat a timely retreat

rapidly recover both health and strength, and resume their original place in the chances for prolonged existence here. Those who labour under organic changes which have spoilt the texture of organs necessary to the continuance of life, either die on the road home, or speedily disappear here. So far as I can ascertain, they form a very small proportion of the whole,—an insufficient number materially to affect the Indian death-rate.

It must not be supposed that I attach undue or exaggerated importance to the records yet published of the mortality about European railway *employés* in India. The figures will have to be scrutinized in far greater detail and with infinitely more scientific precision than has yet been accorded either to them or to the life tables constructed by actuaries, however eminent. Not only must the age, parentage, temperament, and health history of every person be considered, but the disease and manner of his death, and the exact circumstances in which it has occurred, be taken into account, before the casualty can be fairly and finally debited to India.

Taking even the bare fact of the deaths having happened during residence in India, and assuming, with the Government Director, the rate of 10 per 1,000 to represent fairly the casualties among the

European railway staff in India, at the ages of from twenty-five to forty-five, and knowing that they refer entirely to the last twenty-three years, do they not contrast favourably with Brown's 26 per 1,000 for military, and 19 per 1,000 for civil lives of the insuring and insurable classes; and still more favourably with Woolhouse's 30 per 1,000 for the same ages of military life among "Europeans residing in India"?

The mean of Farr's healthy lives, from twenty-five to forty-five, is 8·15 per 1,000; and so it turns out that the death-rate among the healthy men of England, and a railway staff exposed to more than ordinary risks of life in the discharge of their ordinary duties in a tropical climate, is a man and a half per thousand.

If inquiry be instituted as to the classes of railway servants among whom the casualties occur, the case is even stronger than I have put it.

Classes of  
railway ser-  
vants who die  
in greatest  
number.

In a return of the deaths among the railway servants of the East Indian Railway for the five years 1868-1872, appear the following figures. They include Europeans and Eurasians :—

Apprentices . . . . .	2
Boiler Makers . . . . .	4
Bricklayer . . . . .	1
Clerks . . . . .	5
Commanders of Steamers . . . . .	2

Drivers . . . . .	39
Engineer (Civil). . . . .	1
Engineer (Steamboat) . . . . .	1
Firemen . . . . .	31
Fitters . . . . .	11
Foremen . . . . .	6
Guards . . . . .	26
Inspectors . . . . .	8
Lamp Maker . . . . .	1
Locomotive Superintendents (assistant)	2
Medical Officer . . . . .	1
Paymaster . . . . .	1
Platelayers . . . . .	5
Shedmen . . . . .	2
Shunters . . . . .	3
Station Masters . . . . .	5
Store Superintendent . . . . .	1
Ticket Collectors . . . . .	4
Train Examiners . . . . .	8
Travelling Auditors . . . . .	2
Wheelwright . . . . .	1

The number of members of the insuring classes is extremely small, no less than ninety-six of the whole number having been guards, drivers, and firemen, whose lives no office whatever would think of insuring.\*

This return, imperfect as it is, from not showing the actual disease from which

\* The above return was kindly furnished to me by the East Indian Railway Company. I have since been informed by a Railway Surgeon of experience that some of the guards employed were discharged soldiers engaged in India, who carried the soldier's love of liquor to the rail, with the usual results.

every man died, will bear the strictest comparison with the mortality rates of soldiers in India, in spite of every care which a wise and benevolent Government bestows on the preservation of so costly an instrument. These rates in Bengal, as extracted from the reports of the Army Medical Department, ranged in ten years, from 1861 to 1870, from a minimum of 20·11 per 1,000 in 1866, to a maximum of 45·93 per 1,000 in 1861.

The above ratio of deaths, again, bad as it is, must be considered a great improvement on the 69 per 1,000 of the period prior to Lord Herbert's commission.

The railway returns generally appear to me to demonstrate, with some approach to mathematical accuracy, that I was perfectly justified in my principal statement, viz., that the old figures were not applicable to existing circumstances, and that the conditions of military service were no indication whatever of civil risks.

To these statements, then, I adhere unreservedly, not as "loose remarks," but as based upon figures not collected by me, and for which I am in no way responsible, but which I believe to be correct.

I have applied to the Director-General of the Army Medical Department for a return of deaths among the officers of the army in India for the last ten years. This return is, I am informed, nearly ready,

and, I believe, will show a death-rate of 17 per 1,000 at all ages among officers residing in India. That, of necessity, includes all lives insurable as well as uninsurable, and again shows an improvement in the value of the lives of officers quite sufficient to justify fully the remarks in my first letter.

When I receive the return, it shall be forwarded to you, and I have no misgiving but that it will clear me as effectually from the imputations of ignorance and error, as the Parliamentary Reports of the railways have done.

Fact versus  
fiction in the  
alleged mental  
and bodily in-  
firmities of old  
Indians.

Among the statements advanced by Dr. Ewart to prove that the climate of India is quite as black as it has been painted, is the assertion that "although the majority of men retire comparatively early in life, judging from an English standard, they are permanently enervated by the climate, and altogether unable to compete with their healthy and more vigorous rivals of even greater age at home."

This is the fiction.

Now for one fact at least in disproof.

The Indian  
members of the  
Athenæum.

I have at this moment before me the list for 1872 of members of the Athenæum Club, who have served in India. From it I have deducted the name of one who was killed by an accident since the list was printed. There remains seventy-three, a rough calculation of whose average resi-

dence in India would give at least a quarter of a century of tropical service to each.

Among them are one viceroy, two field-marshals, and two generals who have been commanders-in-chief, four chief justices, three governors, four lieutenant-governors, several puisne and high court judges, generals, members of the Indian council, retired civilians, doctors, &c. Of the above some are actively employed in the highest judicial tribunals of England, others are engaged in the Home Government of India, or busily occupied in other walks of life in which both mental and bodily vigour are needed. That they are in any sense inferior to their colleagues and contemporaries who have never quitted Europe, in either physique or morale, is not known here. There is, probably, no body of men of the same numerical strength in the whole world who have undergone greater mental and bodily strain under a tropical sun, than the Indian members of the Athenæum. When I mention that among them are Lords Lawrence, Sandhurst, and Napier of Magdala, Sir Edward Ryan, Sir James Colville, Sir Barnes Peacock, and Sir Lawrence Peel, Sir Henry Rawlinson, Sir John Kaye, and Mr. Marshman, Sir Bartle Frere, Sir George Clerk, Sir Henry Montgomerie, and Sir George Campbell; Messrs. John Muir and Edward Thomas, the respective writers of "Ancient Law" and of

the “ Battle of Dorking,” and several other of the most prominent men of the day, the utter groundlessness of Dr. Ewart’s assertion needs no further demonstration.

An examination of the lists of the London clubs in which Indian members are even more numerous,—the Oriental and the three United Service clubs,—would bring out the same fact. It would be impossible for any one standing at the doors of those institutions, and watching the incoming and outgoing of the members to distinguish the Indians from the others by any such marked characteristics as would inevitably be stamped upon them, were they either enervated or in the state of bodily infirmity painted by the champion of the Standard.

A bundle of fallacies regarding India.

It is, perhaps, worth while to notice briefly a bundle of the leading fallacies of the time, as to the permanent constitutional injury resulting from a prolonged residence in the tropics ; the oft-quoted saying of Twining regarding the absence of a third generation of pure European descent ; and the alleged impossibility of colonizing any portion of India, or of its plains, by Europeans.

The children of Europeans in India.

As regards the children of Europeans, other than soldiers in barracks, I am of opinion that up to the time of the second dentition they thrive quite as well in India as they do at home. In some respects,



better, for the period of teething, and the exanthematous diseases, is gone through, as a rule, with less suffering and greater safety. This, at all events, is the record in my note-books of the Upper and Lower Orphan Schools at Kidderpore and of the Free School of Calcutta, with all of which I was at one time connected. I gather from Dr. Fayrer's paper on the European Orphan Asylum that he is very much of the same opinion. A similar inference may fairly be drawn from Mr. Samuel Brown's paper in the *Journal of the Institute of Actuaries*. The healthiness of the children at the Catholic orphanage at Darjeeling is simply marvellous, and the number of tombstones in the graveyard of the Upper Orphan School at Kidderpore, covering the history of the greater part or a century, did not exceed eight or ten when I last saw it, if my memory be not at fault. The assertion that European children educated in the Hills of India are a feeble, degenerate lot, accords quite as little with my personal experience as most of the other dogmata of my critic. With a similar quality of mental and physical training to that given in Europe, I know of no reason why children brought up in the Himalayas should not be the equals of their fellow-countrymen anywhere, and I know of a good many strong and valid reasons why they should be so.

That the education and training in those places are not quite what they ought to and might be, under more efficient management, is true enough, but to debit to climatic causes the faults of the system in use, is on a par with the rest of the reasoning on the subject.

Permanent constitutional injury said to be caused by long residence in the tropics.

I am quite aware that the majority of writers on Indian diseases are of opinion that long residence in the tropics is a cause of permanent injury to the health, but I participate in this view to a very moderate extent.

Formerly there were few Europeans in India who did not belong to the official classes, and the rules for leave of absence on account of sickness were so stringent, that most persons were detained in the country either until they were altogether beyond the reach of beneficial influence from change of climate, or until they had become confirmed invalids whom no change could restore to health. The cost and difficulty of removal from India were also important factors. The ships sailed only at certain seasons, and the means of transit from the interior to the coast were slow and expensive. My grandfather paid 10,000 rupees for his passage to England in the *Prince Regent*, in 1829. The cost of conveying a viceroy and his staff to India now, probably does not amount to much more.

All this is entirely changed, and as I have already said in a former paragraph, the timely removal home or to the hills, available for all classes, official and non-official, including even private soldiers and subordinate railway servants, has altogether removed the conditions on which this view was based.

The data are rapidly accumulating for applying the numerical method to the solution of this among other disputed questions regarding Indian sickness and mortality. Until this is done, and my view is thus shown to be wrong, and so long as it must remain more a question of opinion than of accepted fact supported by authentic figures, I see no reason to alter my views.

That long-continued service in the plains is consistent with a high standard of mental and bodily vigour, is shown in the selected men of the army, known as warrant officers, among whom were some of the most hale, vigorous, bright, intelligent old men I have ever known anywhere. In this view I am supported by General Cavenagh, the late governor of Singapore, and probably the most distinguished officer who ever filled the office of Town Major of Fort William. The majority of the men referred to cast their lot in India, and seldom quitted the plains. It would be easy for the Government in India, and it is quite worth its while, to have the records

of the Town Majors' offices in the three Presidencies searched, to show what became of them. They were from first to last a numerous body, and are the only selected class of military Europeans in India after arrival there, so that the accumulation of correct data regarding them would be of value to the Government in throwing light upon the continued heavy, although diminishing, death-rate among the European soldiery.

Colonization  
of the hills and  
plains of Hin-  
dustan.

Dr. Twining said long ago that three generations of Europeans, *pur sang*, were not to be found in the plains of Hindustan. *Ergo*, it is now gravely asserted that colonization of any part of that great country is impracticable, and that it is consequently dangerous for European gentlemen in India to insure their lives at English rates.

Dr. Twining's is one of those epigrammatic utterances which charm by their terseness and apparent truth, but will not stand the test of analytical investigation. Prior to the time at which Twining wrote, not far from half a century since, European women were comparatively scarce in India, and the Europeans of the classes who spent their lives in the country, formed native connections, from which the numerous and respectable class of Eurasians is descended. The opportunity of proving the correctness of his apophthegm

had not, in fact, existed, and the cause of the non-appearance of the third white man in direct lineal succession, was very much the same as that assigned in the time of Queen Elizabeth for the non-appearance of the Spanish fleet.

I myself do not believe in the possibility of colonizing tropical plains with men and women from the fair-haired nations of northern Europe, because the majority of them would not modify their habits so completely as to render such a proceeding safe and practicable. Malte-Brun, the geographer, believes it to be perfectly feasible, while M. Boudin, the eminent medical geographer, was of a different opinion. The countrymen of both have been trying the experiment in Algeria since 1830, with what success I am too imperfectly informed to hazard a statement.

The question, however, is not one of entire transplantation, but of simple *vivere* and *valere*, and in this sense, which is the only one applicable to the present discussion, I am disposed to side with Malte-Brun.

I find on looking through the leaves of a pamphlet which I published in 1859 regarding the British soldier in India, under the head of acclimatization, I wrote as follows. I quote it merely to show that I did not adopt the opinions I hold on the subject for any purpose connected with

the present discussion, and, *à fortiori*, it had nothing in the world to say to THE POSITIVE, which did not then exist.

“With hill stations within easy reach, with properly-constructed barracks in the plains, with more suitable clothing and protection for the head of the soldier, and, above all, with the provision of healthy, moral, physical, and intellectual recreation to wean the soldier from his present fatal habit of indulgence in the distilled poisons of the bazaar, his chances of life and health in India need not be found below those of his class in more favoured countries.”

The British soldier is not yet weaned. The further consideration of the question may be safely postponed until Europeans in India take to cultivating the soil as manual labourers, or to squatting in the plains as hewers of wood and drawers of water, and THE POSITIVE undertakes to insure their lives against the risk of such a proceeding.

General re-  
marks.

It is abundantly manifest, from the tone, temper, and line of argumentation of the papers which you have submitted to me, that the opponents of THE POSITIVE do not sufficiently realize the progress of the age in matters relating to commercial enterprise, of which the question of Life Assurance is one of rapidly extending interest and importance. The railroad, the telegraph, and cheap postal communication have revolutionized society in every quarter of the globe, and so modified all our social

relations as to render it impossible to stand still, or to continue in the ancient ways in making provision against the possible and probable risks to which the busy and locomotive life of our time is exposed.

All parts of the inhabited globe having commercial relations with each other, are now so knit together that it is no longer possible to treat each separately, or to subject them to artificial restrictions based on mere climatic and geographical considerations.

Nor is it necessary to do so.

If these restrictions were founded on statistical data, embracing all countries in their grasp and import, there might be some reason for their continuance; but, so far as statistical inquiry, beyond the limited pale of the experience of Life Offices, has been brought to bear upon questions of population, the reverse appears to me to be the case.

During the active or insurable period of life, a man may change his climate from an arctic winter to an equatorial summer, more than once in the course of a single year. It is simply intolerable that, in every such change, he should be liable to altered conditions of assurance, the violation or neglect of any one of which will vitiate his policy.

It is well established in relation to all

classes of facts, moral and physical, that the greater the field of observation, the more minor, local, and accidental sources of difference are eliminated, and the more general the laws which regulate such matters are found to be. The average duration of human life, the incidence of sickness from various causes, and the mortality resulting therefrom, undoubtedly obey certain general laws, which are not found to be so widely divergent in different countries, as the present practice of the older Assurance Offices would fain have us to believe. The problem now to be solved is to find a mean average for the whole world, and to base upon it the calculation of the premia required to cover the general risk.

Extreme cases in estimating mortality rates need not be regarded; there is no compound or increasing rate of mortality in any country that I know of; and daily extending experience shows that the value of life is increasing in every part of the British dominions, and decreasing in none. If, as we now know to be the case, the railway *employé* in India, exposed to the maximum of climatic risks, dies in very much the same proportion as the English soldier at home; and if the crew of the *Polaris* faced the extreme suffering of two arctic winters, amid considerable privation, with the loss of a single life, I



think you may safely disregard the vaticinations of the prophets of evil, whose property has risen in value 7,200 per cent., and who naturally do not desire any decrease of this golden harvest from the invasion of pestilent Positivists.

The admirable paper of Lord Sandhurst on the subject is to my mind conclusive; and as the mature opinion of one of the most eminent soldiers and statesmen of our time, will, I doubt not, carry the weight to which it is fairly entitled.

In conclusion, I must end as I began, by adhering to every one of my original statements in their fair and logical meaning, and by declining to strike my flag to the feeble assaults which have been directed against it.

Conclusion.

I am, Sir,

Your obedient servant,

F. J. MOUAT, M.D.

*Deputy Inspector-General of Hospitals (retired);  
Secretary, Statistical Society, &c.*